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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/810,188

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Masaki Fukuchi

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EXAMINER

OLSEN, LIN B

ART UNIT

PAPER NUMBER

3609

MAIL DATE

DELIVERY MODE

07/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/810,188

Applicant(s)

FUKUCHI ET AL.

Examiner

Lin B. Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-8 is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 5 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The disclosure is objected to because of the following informalities: On page 9, two Fig. 30's are referenced. Only one Fig 30 is present in the application.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 5 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claimed invention does not fall into within one of the four categories of patent eligible subject matter recited in 35 U.S. C. 101 (process, machine, manufacture, or composition of matter). The claimed invention appears directed to a judicial exception to 35 U.S.C. 101, an abstract idea. However, because the claim does not require any physical transformation, it does not fall within the exception.

The examiner suggests rewriting claim 5 as an apparatus, with explicit recital of a medium containing the program.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 5, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,255,793 to Peless et al. (hereafter referred to as Peless. Peless is concerned with a method for operating a robot within an enclosed area. One particular application is a robotic lawnmower.

Regarding **claim 1**, “ A behavior controlling apparatus for controlling the behavior of a mobile robot apparatus, said behavior controlling apparatus comprising: landmark recognition means for recognizing a plurality of landmarks arranged discretely;” reads on the robot identifying the boundary that is marked by individual markers (landmarks) as illustrated in figures 11a, 12a, 12b, 13b, 14b 15a and 15b (col. 9, lines 61-65). In some cases, as illustrated in figure 13b, the markers may contain bar codes that can be read by the bar code reader in the sensor (col. 10, lines 20 – 27). “landmark map building means for integrating the locations of said landmarks recognized by said landmark recognition means for building a landmark map based on the geometrical topology of said landmarks;” reads on the robot building an initial map of the markers forming the boundary of the area to be worked in as described at col. 6, lines 4 –60. While this section of the reference refers to the continuous boundary, at

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col. 9 line 61 - col. 10 line 57 the reference describes how the same function is performed with discrete markers. "mobility area recognition means for building a mobility area map, indicating the mobility area where the mobile robot apparatus can move, from said landmark map built by said landmark map building means;" reads on the robot further identifying the boundaries of enclosed areas (col. 6, lines 62-64). The robot is pre-programmed to avoid the islands – there by defining a working area as that enclosed by the boundary but excluding the islands. (col. 7, lines 43-53). "behavior controlling means for controlling the behavior of said mobile robot apparatus using the mobility area map built by said mobility area recognition means" reads on the processor executing the pre-programmed instructions which determines the pattern of mowing conducted within the working areas (col. 7 lines 1-8.)

Regarding **claim 2**, which depends on claim 1, "said landmark map building means integrates the landmark information recognized by said landmark recognition means and the odometric information of the robot apparatus itself to estimate the geometric positions of said landmarks and outputs said geometric positions as a landmark map." reads on the robot using its odometer to measure distance and predict the approach to a boundary (col 7, lines 23-32). In the reference, the robot corrects the map based on the measure distance (col. 7, lines 33-41).

Regarding **claim 4**, claim 4 recites the limitations of claim 1 in method form. Claim 4 is rejected as anticipated by Peless for the reasons listed above.

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Regarding **claim 5**, claim 5 attempts to recite the limitations of claim 1 as a computer program, but fails to recite the physical embodiment. Claim 5 is rejected as anticipated by Peless for the reasons listed above.

Allowable Subject Matter

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: The cited art does not appear to teach or suggest adding a mobility area as a virtual obstacle in an obstacle map of the environment around the robot apparatus and controlling the behavior of the robot apparatus so that the robot apparatus will move only in an area determined to be a free area in the obstacle map.

Claims 6, 7 and 8 are allowed.

The following is an examiner's statement of reasons for allowance: The cited art and U.S. Patent No. 7,054,716 to McKee et al., which are the closest prior art, do not appear to teach or suggest embodying the behavior controlling program in a single mobile robot including at least one movable leg and a trunk.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 7,085,624 to Aldred et al. for non-discrete landmark identification, U.S. Patent No. 6,539,284 to Nourbakhsh et al. for finding landmarks in a predefined area, U.S. Patent No. 6,917,855 to Gonzalez-Banos et al. for identifying a visibility region, U.S. Patent No. 7,015,831 to Karlsson et al. for building a landmark map, Proceedings of IEEE Int. Conf on Robotics & Automation: 2004 – article by Sabe, 2003 – Articles by Gutmann and Montemerlo, and 2001, Article by Mata.

Conclusion

As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin B. Olsen whose telephone number is 571-272-9754. The examiner can normally be reached on M-F, 7:30am-5:00pm EST, Alternate Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian T. Pendleton can be reached on 571-272-7527. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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BRIAN TYRONE PENDLETON
SUPERVISORY PATENT EXAMINER